

**DIPLOMA IN CIVIL ENGINEERING
DCLE(G)**

Term-End Examination

00691

December, 2019

BCE-031 : ADVANCED SURVEY

Time : 2 hours

Maximum Marks : 70

Note : *Question no. 1 is compulsory. Attempt any four questions from the rest of the questions.*

1. Choose the correct answer from the given alternatives :

7×2=14

- (a) Valley curves have
- (i) Downward convexity
 - (ii) Upward convexity
 - (iii) No convexity
 - (iv) None of the above

- (b) If L is the length of a line and θ is the reduced bearing, latitude of the line will be
- (i) $L \sin \theta$
 - (ii) $L \cos \theta$
 - (iii) $L \operatorname{cosec} \theta$
 - (iv) $L \sec \theta$
- (c) The multiplying and additive constants of a tacheometer are
- (i) 0 and 100
 - (ii) 0.10 and 100
 - (iii) 100 and 0
 - (iv) 100 and 0.10
- (d) Length of long chord in a simple circular curve is
- (i) $2R \cos \phi$
 - (ii) $2R \cos \frac{\phi}{2}$
 - (iii) $2R \sin \phi$
 - (iv) $2R \sin \frac{\phi}{2}$
- (e) A total station can measure
- (i) Angle and distance both
 - (ii) Angle only
 - (iii) Distance only
 - (iv) None of the above

- (f) The master control station of the control segment for GPS satellite is situated at
- (i) Dehradun
 - (ii) Colorado
 - (iii) California
 - (iv) Delhi
- (g) The sounding method of survey is associated with
- (i) Chain survey
 - (ii) Aerial survey
 - (iii) Hydrographic survey
 - (iv) City survey
2. (a) Describe the permanent adjustments of a theodolite. 7
- (b) Explain the basic principles of a traverse survey. Describe various types of traverse surveys. 7
3. (a) Discuss the different systems of tacheometric measurements. 7
- (b) Two distances of 50 m and 80 m were accurately measured out and the intercepts on the staff between the outer stadia wires were 0.496 at the former distance and 0.796 at the latter. Calculate the tacheometric constants. 7

4. Explain the various methods of designation of curve. Derive a relationship between the degree of a curve and its radius. 14
5. What do you mean by vertical curve ? Discuss the procedure of determination of length of “vertical curve”. 14
6. (a) Discuss the concept of total station. Also explain the two basic designs of a total station. 7
- (b) Explain the three segments of a GPS. 7
7. (a) Discuss the work of a hydrographical surveyor. 7
- (b) What is Geodetic Triangulation ? Describe the method of triangulation. 7
8. Write short notes on any **two** of the following : $2 \times 7 = 14$
- (a) Closing error in traverse
- (b) Superelevation
- (c) Components of a simple circular curve
- (d) Anallactic lens
-